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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,933	02/14/2001	Lance E. Hacking	42390.P10922	1368

7590

03/25/2004

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EXAMINER

KIM, KENNETH S

ART UNIT	PAPER NUMBER
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2111

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DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,933

Applicant(s)

HACKING ET AL.

Examiner

Kenneth S KIM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

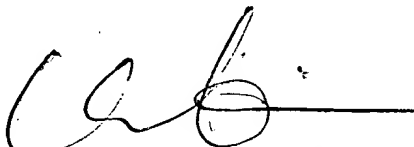
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 23-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


KENNETH S. KIM
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1. Claims 1-22 have been elected for examination and claims 23-38 remain non-elected.
2. The abstract of the disclosure is objected to because the current abstract does not reflect the inventive feature of the claimed invention to distinguish over the prior art. Correction is required. See MPEP § 608.01(b).

All amended abstracts are to be submitted on a **separate sheet** (without the brackets and underlines) in addition to a mark-up copy.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 7, and 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Palanca et al, U.S. Patent No. 6,651,151.

Palanca et al teaches the invention as claimed in claim 1 including an apparatus comprising:

- (a) a decode circuit to decode a load fence instruction (104; col. 5, line 16),

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(b) an execution unit to execute said load fence instruction after said decode circuit has decoded said load fence instruction (col. 5, line 48), and

further teaches as in claims 2 and 7,

(c) wherein said execution unit prevents load operations from executing until load operations executed prior to said load fence instructions are globally observed (col. 2, line 39) – claim 2,

(d) further comprising a cache controller to control access to cache memory (120) – claim 7.

The method claims 15-21 with load buffer (112, claim 17), reorder buffer (109) to store load data (claim 18), blocking load instructions subsequent to the load fence instruction (col. 5, line 54; col. 6, line 2; claim 19), and allowing out-of-order execution when there is no dependency (col. 2, line 63; col. 3, line 8; claim 20) are equivalently rejected based on the same reason.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-6, 8, 9-14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palanca et al, U.S. Patent No. 6,651,151 (Palanca '151) in view of Palanca et al, U.S. Patent No. 6,073,210 (Palanca '210).

Palanca '151 teaches the invention substantially as claimed in paragraph 4 above, however, does not expressly state that post and pre-serialization modes are employed with mode bit register control.

Palanca '210 teaches the method of implementing post and pre-serialization modes with mode bit register control (fig. 5, 510; col. 4, line 39) in association with a store fence instruction.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made that the same type of serialization in association with a load fence instruction can be made to preserve memory ordering. The person would have been motivated to implement such serialization modes to enhance versatility in preserving load ordering in program order before and after the load fence instruction.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Konigsburg et al taught a method of speculatively executing a load instruction before a synchronization instruction.

Hughes et al taught a method of preserving read ordering using snoop resynchronization mechanism.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth S KIM whose telephone number is (703) 305-9693. The examiner can normally be reached on M-F (8:30-17:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on (703) 305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

March 15, 2004



KENNETH S. KIM
PRIMARY EXAMINER